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硕士学位论文

基于FMEA的企业供应链运作风险识别与评估

Supply Chain Operational Risk
Identification and Assessment Based on FMEA

李宗蔚

指导教师：张存禄

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摘 要

伴随着全球经济一体化进程的加速、网络信息技术的飞速发展以及知识经济的强劲驱动，企业供应链的内外部环境发生了巨大的变化。企业在追求效率、不断“瘦身”的同时，自身供应链的脆弱性也逐渐显现，如何有效地进行供应链风险管理越来越受到学界和业界的广泛关注。如何对供应链运作风险进行识别、评估以及有效防范与应对成为企业关心的问题。

故障模式影响分析（Failure Mode and Effects Analysis，简称FMEA），是故障模式分析（FMA）与故障影响分析（FEA）两者的组合。FMEA方法最早是质量管理中的一种重要的可靠性设计方法，用于确定潜在失效模式并对相关原因进行分析。经过多年的发展，FMEA早已不局限于可靠性设计方面，任何涉及识别、评估潜在问题或风险的领域该方法都可适用。如今，FMEA成功地运用到了项目风险管理当中。

本文基于FMEA设计了一套针对企业供应链运作风险识别、评估的方法，并将其运用于A企业。

本文首先对供应链风险管理相关理论以及FMEA方法的运用进行了文献综述，然后依据供应链运作参考模型（Supply Chain Operations Reference-Model，简称SCOR）对企业供应链运作流程进行梳理、分解，接着运用改进后的FMEA方法识别、评估各流程阶段可能存在的风险，最后是该方法在A企业的应用，在对识别得到的风险进行评估、分类后提出了有针对性的措施和一体化风险管理建议。

作为一个新的尝试，本文将FMEA方法成功地运用于A企业供应链风险的识别与评估领域，为供应链风险管理研究提供了新的思路，同时也丰富了企业的供应链风险管理手段。

关键词：供应链风险；FMEA；风险识别；风险评估

Abstract

With the acceleration of global economic integration process, the rapid development of network information technology and the strong drive of knowledge-based economy, the internal and external environment of supply chain have undergone tremendous changes. The enterprises get more vulnerability of their supply chains when they pursuit efficiency. The academia and industry pay more and more attention to how to fulfill supply chain risk management effectively. How to identify, assess, prevent and respond to it effectively becomes a business concern in the field of supply chain risk management.

FMEA(Failure Mode and Effects Analysis) is the combination of FMA and FEA. Before, FMEA is an important method about reliability design in quality management which was used to determine potential failure modes and analyze the related reasons. After years of development, FMEA has been applied in areas where involving identification, assessment of potential problems or risk, not only limited to the reliability design.

In this paper, a method based on FMEA for the operational risk identification, assessment of the supply chain is designed, which is applied in Company A. Firstly this paper reviews supply chain risk management theory and the application of FMEA methods, and then uses improved FMEA to identify and assess possible risk in the various process stages according to SCOR model, at last the method has been applied in A company. After identifying, assessing and classifying the potential risk, targeted measures and integration suggestions are given.

As a new attempt, FMEA method has been successfully used in the identification and assessment supply chain risk for A company, which not only provides a new thought for supply chain risk management study, but also enriches the supply chain risk management tools for enterprises.

Keywords: Supply chain risk; FMEA; Risk identification; Risk assessment

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